

AD-A045 597

WASHINGTON UNIV SEATTLE DEPT OF PSYCHOLOGY

F/G 5/10

GOAL SETTING, EVALUATION APPREHENSION AND SOCIAL CUES AS DETERM--ETC(U)

SEP 77 S E WHITE, T R MITCHELL, C H BELL

N00014-76-C-0193

UNCLASSIFIED

TR-77-12

NL

| OF |

AD  
A045597



END

DATE

FILMED

11 - 77

DDC

AD A045597

12  
B.S.

# DECISION MAKING RESEARCH

DEPARTMENT OF PSYCHOLOGY  
DEPARTMENT OF MANAGEMENT AND ORGANIZATION  
UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON



DDC  
RECEIVED  
OCT 26 1977  
B

DISTRIBUTION STATEMENT A  
Approved for public release;  
Distribution Unlimited

AD No. 1  
DDC FILE COPY

---

---

DECISION MAKING RESEARCH  
DEPARTMENT OF PSYCHOLOGY  
UNIVERSITY OF WASHINGTON  
SEATTLE, WASHINGTON

---

---

GOAL SETTING, EVALUATION  
APPREHENSION AND SOCIAL CUES AS  
DETERMINANTS OF JOB PERFORMANCE AND  
JOB SATISFACTION

Sam E. White, Terence R. Mitchell and  
Cecil H. Bell, Jr.

University of Washington  
Seattle, Washington

Technical Report 77-12

September 1977

DISTRIBUTION IS UNLIMITED

Office of Naval Research Contract N00014-76-C-0193  
(Terence R. Mitchell and Lee Roy Beach, Investigators)  
REPRODUCTION IN WHOLE OR IN PART IS PERMITTED FOR ANY  
PURPOSE OF THE UNITED STATES GOVERNMENT  
DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DDC  
RECEIVED  
OCT 26 1977  
B

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM												
1. REPORT NUMBER 77-12	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER (9)												
4. TITLE (and Subtitle) Goal Setting, Evaluation Apprehension and Social Cues as Determinants of Job Performance and Job Satisfaction.		5. TYPE OF REPORT & PERIOD COVERED Technical Report,												
7. AUTHOR(s) Sam E. White Terence R. Mitchell Cecil H. Bell, Jr.		6. PERFORMING ORG. REPORT NUMBER												
9. PERFORMING ORGANIZATION NAME AND ADDRESS Decision Making Research Department of Psychology NI-25 University of Washington, Seattle, WA 98195		8. CONTRACT OR GRANT NUMBER(s) N00014-76-C-0193												
11. CONTROLLING OFFICE NAME AND ADDRESS Organizational Effectiveness Research Programs Office of Naval Research (Code 452) Arlington, VA 22217		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS (11)												
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) TR-77-12		12. REPORT DATE September 1977												
(12) 26p.		13. NUMBER OF PAGES 21												
		15. SECURITY CLASS. (of this report) UNCLASSIFIED												
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE												
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited														
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)														
18. SUPPLEMENTARY NOTES														
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) <table border="0"> <tr> <td>Goal Setting</td> <td>Positive, Negative and</td> <td>Job Pressure</td> </tr> <tr> <td>Evaluation Apprehension</td> <td>Neutral Social Cues</td> <td>Boredom</td> </tr> <tr> <td>Job Performance</td> <td>Productivity</td> <td>Satisfaction with One's</td> </tr> <tr> <td>Job Satisfaction</td> <td>Assigned Goals</td> <td>Performance</td> </tr> </table>			Goal Setting	Positive, Negative and	Job Pressure	Evaluation Apprehension	Neutral Social Cues	Boredom	Job Performance	Productivity	Satisfaction with One's	Job Satisfaction	Assigned Goals	Performance
Goal Setting	Positive, Negative and	Job Pressure												
Evaluation Apprehension	Neutral Social Cues	Boredom												
Job Performance	Productivity	Satisfaction with One's												
Job Satisfaction	Assigned Goals	Performance												
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A simulated organizational setting involving a routine clerical task was the experimental context for the research. One hundred and four subjects were randomly assigned in a factorial design-including two levels of goal setting, two levels of evaluation apprehension, and three types of social cues--to investigate the effects of the independent variables on employee productivity and job satisfaction. The results showed that people with assigned goals produced more than people without assigned goals; people with high evaluation apprehension (cont on p 1473 B)														

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE  
S/N 0102-LF 014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

387 783

LB

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

(cont. of P 1473A)

20. ~~4~~ produced more than people with low evaluation apprehension; and people receiving positive social cues produced more than people receiving negative social cues. The independent variables had no main effect on overall job satisfaction but did affect attitudes about job pressure, boredom, and satisfaction with one's performance. These results are discussed in terms of their relevance for current theories of task performance and for applications in organizational settings.

A

1473B

ACCESSION for	
NTIS	Write Section <input checked="" type="checkbox"/>
DDC	Bull Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
BY	
DISTRIBUTION/AVAILABILITY CODES	
Dist.	AVAIL. CODES SPECIAL
A	

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

## **Goal Setting, Evaluation Apprehension and Social Cues as**

### **Determinants of Job Performance and Job Satisfaction**

**Sam E. White, Terence R. Mitchell, Cecil H. Bell, Jr.**

**University of Washington.**

A major portion of the recent research in the area of motivation has emphasized the importance of setting goals and the process by which the goals are set (Campbell & Pritchard, 1976). Reviews of both laboratory studies (Locke, 1968) and field research (Latham & Yukl, 1975; Steers & Porter, 1974) are fairly unambiguous: People usually work harder and perform better when task goals are established than when task goals are absent.

The theoretical foundations for such an approach are provocative. Whereas most theories of task performance are either based on a principle of need fulfillment (e.g., need hierarchy approaches) or some sort of maximization principle (e.g., expectancy approaches), proponents of goal setting argue that just having a goal and accepting it is sufficient for increased task performance. Both the early theoretical work of Ryan (1970) and Locke's (1968) rigorous empirical development of the theory have emphasized the point that goals are the most immediate and direct determinant of task performance and that other situational factors such as monetary incentives and knowledge of results, affect behavior only insofar as they affect the individual's goals. In short, goals are viewed as the primary causal agent of task behavior.

The major purpose of the following research was to separate the effects of establishing task goals from the effects of two other situational dimensions that have been shown independently to influence task performance: evaluation apprehension and social cues. It would appear that in some goal setting studies the results may be partially explained in terms of the degree of evaluation apprehension induced by establishing goals and the social cues provided by the subject's coworkers about accomplishing the goals. Although these variables

may be correlated with setting goals, they can be treated as separate constructs theoretically.

These alternative explanations for observed goal setting effects are fairly straightforward. Both hypotheses are based on the early social facilitation work (Allport, 1920, 1924; Zajonc, 1965) and the later interpretations of this work by Cottrell (1968). This approach suggests that when people are working in situations where other people are present they will produce more because of (a) the apprehension generated by the possible evaluation of their work by others and (b) the set expectations in the form of social cues about how they should behave.

Much of the goal setting work can be partially interpreted in terms of these alternative explanations. For example, in almost every case the experimenter (in laboratory research) or the supervisor (in field research) knows what goals have been set. He or she knows how well the person performs and is therefore able to evaluate the person's job performance. Furthermore, the subjects generally know their performance will be evaluated by the experimenter. Also, in many field studies goals are set for groups of people rather than for individuals (e.g., Latham & Yukl, 1975b; Zander & Newcomb, 1967). In situations where group goals were set it is plausible that social cues and expectations influenced performance rather than goals. One's peers can encourage or discourage one to work hard or to slack off in pursuit of an established goal. Peer pressure has been shown to have a powerful effect on behavior (e.g., the classic studies by Asch, 1951, or Schachter, Ellertson, McBride, & Gregory, 1951) and this pressure may serve to increase task performance. Therefore, in the following study we attempted to measure the effects on task performance of goal setting, evaluation apprehension and social cues, both independently and in combination. In this way we hoped to tease out the independent effects of goal setting on

performance from other influences as well as the relative importance of each variable in explaining differences in performance levels.

A secondary purpose of the research was to examine the relationship between goal setting and job attitudes. The literature reviews by Steers and Porter (1974) and Latham and Yukl (1975a) both note the paucity of research in this area. Some of the early work by Locke (e.g., Bryan & Locke, 1967; Locke & Bryan, 1967) shows that goal setting is positively related to one's interest in the task and satisfaction with performance on the task. Latham and Kinne (1974) reported that goal setting was related to lower absenteeism which they suggest may have reflected an increase in job satisfaction. Umstot, Bell, and Mitchell (1976) found that goal setting produced an interaction effect with job enrichment on job satisfaction; individuals reported high satisfaction when both goals and enrichment were present but low satisfaction when both were absent. Enrichment, however, had a main effect on job satisfaction while goals did not. The following research examines these relationships more fully.

#### Method

##### Subjects

One hundred twenty-four undergraduate business students served as subjects in the research. Due to failure to follow instructions ( $N = 13$ ), previous interaction with confederates ( $N = 3$ ), or a failure to correctly record production data ( $N = 4$ ) twenty subjects were omitted from the analyses. The remaining 104 participants were randomly assigned to the experimental conditions. The ratio of males to females in all treatment conditions was 2:1 and the average age was 23 years (the range was 20 to 38 years). The average age in the treatment conditions varied from 22.4 to 23.9 years.

### Establishing the Organizational Setting

The students were contacted in their classes and asked to volunteer for part-time work. Subjects were told that they were being hired by the American Employment Council (AEC) to organize survey information for shipment to a national headquarters in Washington D.C. Also, they were told that they would be asked some questions about their work experience. Every opportunity to establish a realistic work environment was used to our advantage. Application blanks, signs on the walls and doors of the facilities, and payroll checks bearing the Council's name were used to identify the operation with a national survey project. All output was placed in specially marked containers bearing a fictitious Washington D.C. address and questionnaires and other material were fictitiously identified and presented as a part of the normal work routine. Each subject worked for two hours at a rate of \$2.50/hour.

### The Task

The employees were asked to sort a large number of index cards on a sorting board (Pritchard & Curtis, 1973, used a similar task). Each card contained some biographical information about a fictitious person who supposedly was a respondent to an AEC survey. Each card contained pre-punched information about the sex (male, female), race (caucasian, minority) and salary level (high, medium, low) of the respondent as well as other employee data such as a coded job description. Any given card could be sorted into only one of 12 categories based on the biographical information (sex x race x salary). The sorting board had 12 configurations of long pegs on it; each configuration representing one of the above combinations. The task controlled for performance quality since each card could fit on only one set of pegs. If the employee made a mistake by either misreading the information on the card or misplacing it on the board, the card would not fit onto the spike arrangement until the error was corrected. The individual's task was to fit as many of the cards correctly on the sorting

board as possible during the work period. The task also required the employee-subjects to bundle their sorted cards using a standardized procedure and to place them in a box addressed for mailing.

#### Procedure

The experimental area consisted of three small rooms and one large room normally used as offices on the campus of the university. When subjects arrived they went into the large instructional room where they filled out an employment sheet and a consent form permitting us to use the information gathered from them for research purposes. This activity took about five minutes. The next 20 minutes involved a demonstration of the task by the supervisor-experimenter and the manipulation of the goal setting and evaluation apprehension variables (via instructions). During this period the supervisor's comments were made according to a prescribed script so that, except for manipulations, his comments were exactly the same for every condition. After this introductory phase, the subjects were taken to separate working areas where they worked independently on the task.

Upon arriving at their work stations, subjects were asked to sort some cards remaining from the previous work session. (Actually these cards were placed in the work area by the supervisor and consisted of two cards from each biographical category). This initial sorting activity allowed the subjects to practice the task. After the subjects had finished sorting the 24 cards, they were given an unsorted deck of 250 cards. Each card deck was randomly composed of the 12 combinations of employee information. When the first deck was returned to the mailing box, the subject was given another deck of unsorted cards. These work procedures were followed for approximately 85 minutes. The last 10 minutes of the two hour sessions were spent filling out a questionnaire.

### Manipulating the Independent Variables

Goal setting and evaluation apprehension were manipulated during the demonstration and instructions phase of the experiment. When a goals assigned condition was being run, the following induction was included immediately after demonstrating the task:

"I would like you to set a production goal for your efforts on this job. I would like you to set a goal of 750 cards per hour for your work. I think you can achieve this goal because the work is easy."

If a no goals assigned condition was being run this statement was omitted.

Pilot study results indicated this goal level would be reasonable and moderately difficult to attain. One-half of the pilot subjects achieved this level of productivity.

When a high evaluation apprehension condition was being run, the following induction was included in the task instructions immediately after the goal setting statement:

"Since I am interested in how well you do on this task, I would like to have you identify your output by putting your initials on each deck of cards you sort. Later, I will carefully evaluate your proficiency at doing this task by comparing your level of output with that of others who work on this project."

In the low evaluation apprehension condition, no initials were written on the card decks and there was no mention of evaluation made by the experimenter. In both of the evaluation apprehension conditions, the subject's bundled cards were mixed with other people's cards (in a large box in the instructional room) so that it was difficult to distinguish one person's output from another person's during the work sessions. In addition, the experimenter left the work areas once the subjects had begun the card sorting activities.

Three types of social cues were used: positive, neutral, and negative. The positive and negative cue conditions were established verbally and behaviorally by confederates during the work period. A script was prepared for the

verbal cues to make sure that they were constant across experimental sessions. Also, the six confederates who participated in the study played these roles an approximately equal number of times in each of the 12 treatment conditions. A positive role consisted of issuing positive comments about the task, the information on the cards, and the work environment (e.g., "I like this job" and "I'm working pretty fast now") and sorting three decks of cards (750 cards) per hour. A negative role consisted of issuing negative comments (e.g., "I don't like this job" and "I'm not working very fast now") and sorting one deck of cards per hour. The neutral social cue condition paired two naive subjects together. The cues in this condition consisted of the natural unrehearsed responses of the subjects to the experimental task, the experimental environment, and to each other. Subjects in the neutral social cues condition served as a control group against which the positive and negative conditions could be compared.

Some additional comments about the use of confederates may be in order. First, they practiced their roles a number of times before the experiment began. Second, in the actual study they were treated like every other experimental subject. They filled out all the forms and questionnaires and were subject to the same work procedures as the other participants. Third, while the confederates were obviously aware of differences in the instructions with respect to goals and evaluation, they were not briefed about the experimental hypotheses. Finally, the confederates did not know which social cue role to play until they entered the instructional room to begin the experiment along with the other subjects. The supervisor placed an unobtrusive P (for positive) or N (for negative) on a calendar hanging on the wall of the room and the confederates acted accordingly.

### Measures

Data were collected on four major classes of variables: (a) manipulation checks; (b) productivity; (c) job satisfaction; and (d) other job attitudes. The

manipulation checks consisted of questionnaire items administered at the end of the work session. To assess the effectiveness of the goal setting manipulation each employee was asked to respond to the following two questions on a 7-point scale ranging from (7) agree strongly to (1) disagree strongly: (a) "Individual performance goals were set on this job." (b) "I had production goals to meet on this job."

Similar scales were used to assess the effectiveness of the social cues manipulation. Subjects indicated their amount of agreement to the following statements: (a) "I feel that others did not do their best on this job." (b) "I feel that others were bored on this job."

Using a similar 7-point scale, a fifth item measured evaluation apprehension: "My performance was measured and compared with the performance of others on this job." The manipulation check items were intermixed with other job attitude items that are described below.

Productivity was operationalized by measuring the subjects' output during the work period. Each time a subject returned to the instructional area with a sorted deck of cards, a research assistant would secretly record the starting and ending time on a work sheet. When the work session was completed, after the subjects left, the cards sorted in the last card deck worked on were counted and this amount and the ending times were recorded on the work sheet. This procedure provided a means for establishing three measures of productivity.

The major productivity measure was the number of cards sorted per minute (total cards sorted/total minutes worked). However, since some subjects worked longer than others because they asked fewer questions in the instruction period, a second productivity measure was computed. This second measure estimated the subjects' total output in the first 84 minutes worked. This measure eliminated the possible contaminating effects of fatigue on productivity. Eight-four

minutes was chosen as a standard work period because it was the average and median time worked by all subjects in the experiment. If the subject worked less than 84 minutes a projected estimate was computed based upon the rate for the last deck being sorted. For example, assume that a subject completed three decks of cards (750 cards) in 80 minutes and worked on another deck of 250 cards for two more minutes. At 82 minutes the subject is stopped and the experimenter notes that 16 more cards were sorted. For this last card deck we note that the subject was producing at 8 cards per minute on the average. An estimate of four minutes would be 32 cards and this amount would be added to the 80 minute total to give an estimate of cards sorted for 84 minutes. In this case, the subject would have sorted 782 ( $750 + 32$ ) cards in 84 minutes. If the subject worked more than 84 minutes, we would figure out the rate for the last deck worked on and subtract the appropriate number from the total cards sorted to obtain a rate for 84 minutes. A third measure of productivity was the number of cards sorted in the last 15 minutes worked. This measure eliminated the possible contaminating effects of differences in the learning rate on productivity. It was an estimate computed in a similar fashion to the rate in 84 minutes measure.

Job satisfaction was assessed by a post-session questionnaire consisting of two primary measures: (a) the work scale of the Job Descriptive Index (Smith, Kendall & Hulin, 1969) and (b) the general satisfaction scale of the Job Diagnostic Survey (Hackman & Oldham, 1975).

Responses to the following statements were used to establish the subjects' feelings of job pressure, boredom, and performance satisfaction on the job: (a) "I felt pressured on this job;" (b) "All in all, I think this job is boring;" and (c) "All in all, I am satisfied with my performance on this job." Subjects responded to these statements on a 7-point scale ranging from disagree strongly (1) to agree strongly (7) in the post-session questionnaire. These items were intermixed with the other questionnaire items.

In summary, 104 subjects were randomly assigned to one of 12 experimental conditions in a 2 x 2 x 3 factorial design in which the particular conditions were randomly determined over a 12 day period. Two levels of goal setting, two levels of evaluation apprehension, and three types of social cues were manipulated in the research design. The dependent measures consisted of manipulation checks for each independent variable, three measures of productivity, two job satisfaction measures and three measures of other attitudes about the job.

## Results

### Manipulation Checks

An analysis of variance was performed on the items designed to check the effectiveness of the manipulations. The dependent variables for this analysis were three scores generated from the post-task questionnaire. The goal setting index was the sum of the two questionnaire items measuring goal setting. The social cues index was the sum of the two questionnaire items on this topic. The evaluation apprehension score was the item designed to measure perceptions of performance evaluation.

There were no two-way or three-way interactions so only the main effects will be reported. Regarding the goal setting manipulation, the mean of the goal assignment index was 9.62 for the group with goals assigned and 6.52 for the group with no goals assigned. This difference is significant ( $F = 32.58$ ,  $p < .001$ ). No other main effect approached significance on this measure. Regarding the evaluation apprehension manipulation, the mean of the evaluation apprehension item was 4.73 for the group that thought they would be evaluated and 3.13 for the group that thought they would not be evaluated. This difference is also significant ( $F = 26.33$ ,  $p < .001$ ) and no other main effect approached significance. Regarding the social cues manipulation, the mean of the social cues index was 7.66 for the positive cue condition, 7.71 for the neutral condi-

tion and 3.94 for the negative cue condition. The social cues main effect was significant ( $F = 59.20, p < .001$ ) and no other main effect approached significance on this measure. Thus, the data provide convincing evidence that the manipulations were effective and because there were no significant interactions or confounding main effects we can feel confident that the manipulations had independent effects on the employees. The manipulation checks results suggest that the three independent variables are at least somewhat conceptually and empirically distinct variables.

### Productivity

Three-way analyses of variance were carried out on the productivity measures with two conditions of goal setting, two conditions of evaluation apprehension, and three conditions of social cues serving as independent variables. Table 1 presents a summary of these results. Again, only main effects are presented due to the absence of any interaction effects.

-----  
Insert Table 1 about here  
-----

The results are consistent across all three performance measures. Goal setting had a significant effect on cards per minute, total output in 84 minutes, and output in the last 15 minutes worked. The means were 10.59 to 9.98, 884.96 to 840.40, and 166.58 to 154.00 for the goals assigned and no goals assigned groups respectively.

Evaluation apprehension also had a significant effect on all three productivity measures. For cards per minute the mean for the evaluated group was 10.81 and 9.75 for the no evaluation group. For total output in 84 minutes the means were 908.63 and 816.73 and for the output in the last 15 minutes worked the means were 170.10 and 150.46. Both goal setting and evaluation apprehension clearly increased productivity on the job.

Table 1

## A Summary of Results of Three-Way Analysis of Variance on

Three Productivity Measures<sup>a</sup>

Dependent Variable	F	df	% Variance Explained	Probability of F
<b>Cards Per Minute</b>				
Goal Condition	4.823	1	3.6	.029
Level of Evaluation Apprehension	12.104	1	10.9	.001
Type of Social Cues	1.734	2	3.6	.180
<b>Total Output in 84 Minutes</b>				
Goal Condition	3.846	1	2.6	.050
Level of Evaluation Apprehension	13.134	1	11.6	.001
Type of Social Cues	1.582	2	3.3	.209
<b>Output in Last 15 Minutes Worked</b>				
Goal Condition	4.550	1	3.2	.033
Level of Evaluation Apprehension	9.034	1	7.8	.004
Type of Social Cues	2.431	2	4.8	.092

<sup>a</sup>The correlation between the productivity variables is as follows: .99 for cards per minute and total output in 84 minutes, .83 for cards per minute and output in the last 15 minutes worked. The means were 10.59 to 9.08, 86.4 to 84.00, and 106.58 to 104.00 for the goals assigned and no goals assigned groups respectively.

The results for social cues showed no main effect on productivity. For all three performance measures the mean for the positive social cues group was higher than the mean for the neutral group which was in turn higher than the mean for the negative cues group, but none of these differences was significant in the three-way analyses of variance.

However, since the positive and negative cue conditions used confederates and the neutral condition did not, we felt that two additional tests were appropriate. First, we wanted to see whether the neutral cues condition was more like the positive cues condition or the negative cues condition. Table 2 presents these data. From an inspection of the means, one can see that the neutral cues condition was very similar to the positive cues condition in terms of level of performance.

-----  
Insert Table 2 about here  
-----

The second step was to use t-tests to determine whether any of these means were significantly different from one another. A summary of these results is also available in Table 2. For all three productivity measures the positive social cues condition results in significantly greater output than the negative social cues condition. So, while the overall analysis of variance failed to show an effect of social cues on productivity, a more in depth analysis suggests that the positive and negative social cues resulted in different levels of performance. Apparently the variance of the performance scores within the experimentally uncontrolled neutral cues condition caused the analysis of variance with three levels of social cues to be non-significant.

#### Job Satisfaction

The results of an analysis of variance on job satisfaction data do not require a table. There were no significant main effects or interaction effects

Table 2

## Summary of t-tests Applied to Mean Productivity

## Measures for each Type of Social Cues Group

Dependent Variable	Group <sup>a</sup>	Mean	t-tests	p Value
Cards Per Minute	1	10.57		
	2	10.42	1 > 3	t = 2.04
	3	9.86		.023
Total Output in 84 Minutes	1	887.20		
	2	872.15	1 > 3	t = 2.01
	3	828.97		.024
Output in Last 15 Minutes Worked	1	166.68		
	2	164.50	1 > 3	t = 2.27
	3	149.78		.013

<sup>a</sup>Legend: (1) positive cues group; (2) neutral cues group; (3) negative cues group.

for the three independent variables on either the JDI or JDS scales. The social cues conditions were analyzed in a fashion similar to that done with the productivity measures, but the t-tests showed no significant differences or patterns among the mean job satisfaction scores. Apparently, neither goal setting, evaluation apprehension, nor social cues had any direct impact on overall job satisfaction in this particular setting.

#### Other Job Attitudes

The three other attitude measures reflected the subject's perceptions of job pressure, boredom, and performance satisfaction. Analyses of variance on these dependent variables produced the main effects shown in Table 3. For both the feelings of boredom and job pressure there was a main effect due to type of social cues. In general, people in the positive social cues condition were less bored and felt more pressure than employees in the neutral or negative cues conditions. The mean boredom score was 5.66 in the positive condition, 5.97 in the neutral condition, and 6.57 in the negative condition. The mean pressure score was 3.43 in the positive condition, 3.09 in the neutral condition, and 2.34 in the negative condition.

Goal setting also had a main effect on perceptions of job pressure. The mean for the goals assigned group was 3.61 and for the no goals assigned group was 2.60. People felt more pressure when goals were assigned.

-----  
Insert Table 3 about here  
-----

A two-way interaction effect between goal setting and social cues on perceptions of job pressure was also significant ( $F = 7.75, p < .05$ ). This result suggests that goal setting combined with positive social cues places the greatest amount of pressure on the employee. However, when no goals are assigned or when

Table 3

**A Summary of Results of Three-Way Analysis of Variance  
On Responses to Selected Aspects of the Job**

<b>Dependent Variable</b>	<b>F</b>	<b>% Variance Explained</b>	<b>Probability of F</b>
<b>Feelings of Job Pressure</b>			
Goal Condition	6.273	4.4	.013
Level of Evaluation Apprehension	2.624	2.6	.105
Type of Social Cues	4.439	7.3	.014
<b>Feelings of Boredom</b>			
Goal Condition	.086	0.9	.999
Level of Evaluation Apprehension	.018	0.1	.999
Type of Social Cues	3.878	7.3	.023
<b>Feelings of Performance Satisfaction</b>			
Goal Condition	4.052	4.0	.044
Level of Evaluation Apprehension	.274	0.9	.999
Type of Social Cues	1.837	3.6	.163

Insert Table 3 about here

negative cues are present, the pressure to perform well on the job is substantially decreased.

The only other main effect or interaction effect was a main effect of goal setting on satisfaction with one's performance. The mean performance satisfaction in the goals assigned condition was 5.73 and in the no goals assigned condition the mean was 5.23. Since more people reached the goal in the assigned condition, one may infer that these results replicate Locke's finding that attainment of goals increases the satisfaction one has with one's performance on the job.

One further issue about the data should be discussed. When we compare the percentage of variance accounted for by each independent variable on all of the dependent variables (found in Tables 1 & 3) we find that evaluation apprehension had the greatest impact on productivity but very little impact on any of the job satisfaction or other attitude measures. Goal setting and social cues, on the other hand, had a lesser (and almost equal) effect on performance, but a greater effect than evaluation apprehension on the job attitude measures. While goal setting does indeed have a significant impact on performance this effect may not be as strong as the impact of evaluation apprehension. This is an inference that needs to be pursued further but it implies that the manager has several additional alternatives to goal setting that might be expected to lead to increased performance.

#### Discussion and Conclusions

The primary purpose of the study was to compare the effects of goal setting with two plausible alternative explanations for task performance, evaluation apprehension and social cues. In terms of productivity data, all three of the variables appear to have a significant contribution. Setting goals, evaluating

performance and inducing social cues to work hard all impact positively on task performance.

The theoretical implications of the present results are that goal setting does have an independent motivating effect on task performance as shown in previous research. The groups with assigned goals performed better than the groups without goals assigned. These results may be interpreted as highly supportive of Locke's general contention that goals are a cause of increased motivation and productivity. However, the results also indicate that two other factors contribute independently and substantially to increased performance. Individuals also produce more when they know that their performance will be evaluated and that their coworkers are working hard on the task.

While it is relatively easy to argue from these data that goal setting has an independent effect on performance the reverse may not be true. That is, evaluation apprehension and social cues may also lead to covert goal setting. So while goal setting in this study is not confounded by evaluation apprehension or social cues, these latter two factors may be confounded by goal setting. Further research will have to pursue this interpretation. At this point we can only conclude that goal setting seems to have a distinct and separate effect on task performance.

The practical implications of these findings are several. Keeping in mind the limitations that the employees were students and that they only worked for two hours we can conclude that assigning hard specific goals and clearly acknowledging that the employee's performance will be evaluated against this standard should increase performance on routine clerical tasks. Although goal acceptance was not measured, the results suggest that it is not necessary to have employees participate in setting goals in order to gain acceptance of the goals or to realize increased productivity. It may also be inferred from these

results that the mere establishment of specific difficult goals may be necessary but not sufficient to increase performance maximally; the employee must also perceive that the manager will evaluate his or her job performance. When these two factors are combined with positive social cues high productivity should be the result.

A secondary purpose of the study was to investigate the relationship between the three independent variables and job satisfaction and other attitudes about the job. While there were no direct effects of goal setting, evaluation apprehension, or social cues on overall job satisfaction, there were some effects on the measures of job pressure, boredom, and performance satisfaction. As one would expect, goal setting increased perceived job pressure and satisfaction with one's performance on the job. Positive social cues increased perceived job pressure but decreased boredom when compared to neutral and negative social cues. It appears from our research results that assigning goals, evaluating performance, and inducing social cues to perform well among peers leads to a more highly productive, less bored, and more highly satisfied work force.

## References

- Allport, F. H. The influence of the group upon association and thought. Journal of Experimental Psychology, 1920, 3, 159-182.
- Allport, F. H. Social psychology. Boston: Houghton-Mifflin, 1924.
- Asch, S. E. Effects of group pressure on the modification and distortion of judgments. In H. Guetzkow (Ed.), Groups, leadership, and men. Pittsburgh: Penn.: Carnegie Press, 1951, 177-190.
- Bryan, J. F., & Locke, E. A. Goal setting as a means of increasing motivation. Journal of Applied Psychology, 1967, 51, 274-277.
- Campbell, J. P., & Pritchard, R. D. Motivation theory in industrial and organizational psychology. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand-McNally, 1976, 63-130.
- Cottrell, N. B. Performance in the presence of other human beings: Mere presence, audience, and affiliation effects. In E. C. Simmel, R. C. Hope & G. A. Milton (Eds.), Social facilitation and imitative behavior. Boston: Allyn and Bacon, 1968, 91-110.
- Hackman, J. R., & Oldham, G. R. The Job Diagnostic Survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects. New Haven: Yale University, 1975.
- Latham, G. P., & Kinne, S. B. Improving job performance through training in goal setting. Journal of Applied Psychology, 1974, 59, 187-191.
- Latham, G. P., & Yukl, G. A. A review of research on the application of goal setting in organizations. Academy of Management, 1975, 18, 824-845(a).
- Latham, G. P., & Yukl, G. A. Assigned vs. participative goal setting with educated and uneducated woodworkers. Journal of Applied Psychology, 1975, 60, 299-302(b).

- Locke, E. A. Toward a theory of task motivation and incentives. Organizational Behavior and Human Performance, 1968, 3, 157-189.
- Locke, E. A., & Bryan, J. F. Performance goals as determinants of level of performance and boredom. Journal of Applied Psychology, 1967, 51, 120-130.
- Pritchard, R. D., & Curtis, M. I. The influence of goal setting and financial incentives on task performance. Organizational Behavior and Human Performance, 1973, 10, 175-183.
- Ryan, T. A. Intentional behavior. New York: Roland Press, 1970.
- Schachter, S., Ellertson, N., McBride, D., & Gregory, D. An experimental study of cohesiveness and productivity. Human Relations, 1951, 4, 229-238.
- Smith, P. C., Kendall, L. M., & Hulin, C. L. The measurement of satisfaction in work and retirement: A strategy for the study of attitudes. Chicago: Rand-McNally, 1969.
- Steers, R. M., & Porter, L. W. The role of task-goal attributes in employee performance. Psychological Bulletin, 1974, 81, 434-452.
- Umstot, D. D., Bell, C. H., Jr., & Mitchell, T. R. Effects of job enrichment and task goals on satisfaction and productivity: Implications for job design. Journal of Applied Psychology, 1976, 61, 379-394.
- Zajonc, R. B. Social facilitation. Science, 1965, 149, 269-274.
- Zander, A., & Newcomb, T. Group levels of aspiration in United Fund campaigns. Journal of Personality and Social Psychology, 1967, 6, 157-162.

Footnotes  
Locke, E. A. ... Towards a theory of task and incentives. *Organizational Behavior and Human Performance*, 1968, 3, 157-189.

<sup>1</sup>This research was partially supported by the Office of Naval Research Contract NR 170-761, N00014-76-C-0193 (Terence R. Mitchell and Lee Roy Beach, principal investigators) and a grant from the Edna Benson Graduate Research Fund, Graduate School of Business Administration, University of Washington.

We would like to thank Gary P. Latham for his comments on an earlier draft of this paper.

Sam E. White is presently an Assistant Professor of Business Administration, College of Business and Economics, University of Kentucky.

Smith, P. C., Kendall, L. M., & Hulin, C. L. The measurement of satisfaction in work and retirement: A strategy for the study of attitudes. Chicago:

Rand-McNally, 1969.

Steers, R. M., & Porter, L. W. The role of task-goal attributes in employee

performance. *Psychological Bulletin*, 1974, 81, 434-452.

Umstot, D. D., Bell, C. H., Jr., & Mitchell, T. R. Effects of job enrichment and

task goals on satisfaction and productivity: Implications for job design.

*Journal of Applied Psychology*, 1976, 61, 379-394.

Zajonc, R. B. Social facilitation. *Science*, 1965, 149, 269-274.

Zander, A., & Newcomb, T. Group levels of aspiration in United Fund campaigns.

*Journal of Personality and Social Psychology*, 1967, 6, 157-162.

Office of Naval Research  
Code 452  
800 N. Quincy St.  
Arlington, VA 22217

Dr. Davis B. Bobrow  
University of Maryland  
Dept. of Government & Politics  
College Park, MD 20742

Lt. Col. Henry L. Taylor USAF  
OAD(E&LS) ODDR&E  
Pentagon, Rm, 3D129  
Washington, D.C. 20301

Director  
U.S. Naval Research Lab.  
Washington, DC 20390  
ATTN: Technical Information  
Division

Dr. Arie Lewin  
Duke University  
Duke Station  
Durham, NC 27706

Human Factors Plans, OP987P7  
Office of the Chief of  
Naval Operations  
Dept. of the Navy  
Washington, D.C. 20350

Defense Documentation Center  
Building 5  
Cameron Station  
Alexandria, VA 22314

Dr. Lyman W. Porter  
University of California  
Dean, Graduate School  
of Administration  
Irvine, CA 92650

Personnel Logistics Plans  
OP987P10, Office of the Chief  
of Naval Operations  
Dept. of the Navy  
Washington, DC 20350

Library, Code 2029  
U.S. Naval Research Lab.  
Washington, DC 20390

Dr. Manuel Ramirez  
Systems and Evaluations  
232 Swanton Blvd.  
Santa Cruz, CA 95060

Dr. A. L. Slafkosky  
Scientific Advisor  
Commandant of the Marine Corps  
Code RD-1  
Washington, DC 20380

Science & Technology Division  
Library of Congress  
Washington, DC 20540

Dr. Paul Wall  
Division of Behavioral Science  
Tuskegee Institute  
Tuskegee, AL 36088

Office of Naval Research  
International Programs  
Code 102IP  
800 North Quincy Street  
Arlington, VA 22217

Psychologist  
ONR Branch Office  
1030 E. Green St.  
Pasadena, CA 91106

Navy Personnel R & D Center  
Code 01  
San Diego, CA 92152

Naval Analysis Programs,  
Code 431, Office of  
Naval Research  
800 N. Quincy Street  
Arlington, VA 22217

Research Psychologist  
ONR Branch Office  
536 S. Clark St.  
Chicago, IL 60605

Mr. Luigi Petruccio  
2431 N. Edgewood St.  
Arlington, VA 22207

Operations Research Program  
Code 434  
Office of Naval Research  
800 N. Quincy Street  
Arlington, VA 22217

Psychologist  
ONR Branch Office  
495 Summer St.  
Boston, MA 02210

Dr. John J. Collins  
6305 Caminito Estrellado  
San Diego, CA 92120

Statistics & Probability  
Program, Code 436  
Office of Naval Research  
800 N. Quincy Street  
Arlington, VA 22217

Director  
Cybernetics Technology Office  
ARPA, Room 625  
1400 Wilson Blvd.  
Arlington, VA 22209

Commanding Officer  
1 Psychological Research Unit  
Chancery House  
485 Bourke St.  
Melbourne vic 3000 AUSTRALIA

Information Systems Program  
Code 437  
Office of Naval Research  
800 N. Quincy Street  
Arlington, VA 22217

Dr. Russell Bernard  
Dept. of Sociology & Antro.  
West Virginia University  
Morgantown, WV 26506

Director, Engineering Psychology  
Programs, Code 455  
Office of Naval Research  
800 North Quincy Street  
Arlington, Virginia 22217

Dr. M. Bertin  
Office of Naval Research  
Scientific Liaison Group  
American Embassy, Room A-407  
APO San Francisco 96503

Naval Electronics Systems  
Command, Human Factors  
Engineering Branch, Code 4701  
Washington, D.C. 20360

CDR Paul Nelson  
Naval Medical R&D Command  
Code 44, Naval Medical Center  
Bethesda, MD 20014

Director, Behavioral Sciences  
Department  
Naval Medical Research Inst.  
Bethesda, MD 20014

Dr. George Moeller, Head  
Human Factors Engineering Br.  
Submarine Med. Research Lab.  
Naval Submarine Base  
Groton, CT 06340

Bureau of Naval Personnel  
Special Assistant for  
Research Liaison  
PERS-OR  
Washington, DC 20370

Dr. Fred Muckler  
Manned Systems Design, Code 311  
Navy Personnel Research and  
Development Center  
San Diego, CA 92152

LCdr Mike O'Bar, Code 305  
Navy Personnel Research and  
Development Center  
San Diego, CA 92152

CDR P. M. Curran  
Human Factors Engineering Br.  
Crew Systems Department  
Naval Air Development Center  
Johnsville, Warminster, PA 18974

Mr. Richard Coburn  
Head, Human Factors Division  
Naval Electronics Lab. Center  
San Diego, CA 92152

Dr. Alfred F. Smode  
Training Analysis & Evaluation  
Group, Naval Training Equipment  
Center, Code N-00T  
Orlando, FL 32813

Mr. J. Barber  
Headquarters DA  
DAPE-PBR  
Washington, DC 20546

Dr. Joseph Zeidner, Director  
Organization & Systems Res. Lab.  
U.S. Army Research Institute  
1300 Wilson Boulevard  
Arlington, VA 22209

Dr. Edgar M. Johnson  
Organization & Systems Research  
U.S. Army Research Lab  
1300 Wilson Boulevard  
Arlington, VA 22209

Technical Director  
U.S. Army Human Engineering Labs  
Aberdeen Proving Ground  
Aberdeen, MD 21005

U.S. Air Force Office of  
Scientific Research  
Life Sciences Directorate, NL  
Bolling Air Force Base  
Washington, DC 20332

Chief, Human Engineering Div.  
Aerospace Medical Research Lab  
Wright-Patterson AFB  
Ohio 45433

Dr. Donald A. Topmiller  
Chief, Systems Effect. Branch  
Human Engineering Division  
Wright Patterson AFB, OH 45433

Lt. Col. Joseph A. Birt  
Human Engineering Division  
Aerospace Medical Research Lab.  
Wright Patterson AFB, OH 45433

Lt. Col. John Courtright  
Headquarters  
AMD/RDH  
Brooks AFB, Texas 78235

Dr. E. Weiss  
Office of Science Information  
National Science Foundation  
1900 Pennsylvania Avenue  
Washington, D.C.

Journal Supplement  
Service  
American Psychological Assoc.  
1200 - 17th St. N.W.  
Washington, DC 20036

Mr. Edward Connelly  
OMNEMII, Inc.  
Tyson's International Bldg.  
8150 Leesburg Pike, Suite 600  
Vienna, VA 22180

Dr. Victor Fields  
Montgomery College  
Dept. of Psychology  
Rockville, MD 20850

Dr. Bruce M. Ross  
Catholic University  
Department of Psychology  
Washington, DC 20064

Dr. Robert R. Mackie  
Human Factors Research, Inc.  
Santa Barbara Research Park  
6780 Cortona Drive  
Goleta, CA 93017

Mr. Alan J. Pesch  
Eclectech Associates, Inc.  
P.O. Box 179  
North Stonington, CT 06359

Dr. A. I. Siegel  
Applied Psychological Services  
404 E. Lancaster Street  
Wayne, PA 19087

Dr. W. S. Vaughan  
Oceanautics, Inc.  
3308 Dodge Park Road  
Landover, MD 20785

Director, Human Factors Wing  
Defense & Civil Institute of  
Environmental Medicine  
P.O. Box 2000  
Downsville, Toronto, Ontario CA

Dr. A. D. Baddeley, Director  
Applied Psychology Unit  
Medical Research Council  
15 Chaucer Rd., Cambridge,  
CB2 2EF ENGLAND

Major David Dianich  
DSMS  
Building 202  
Fort Belvoir, VA 22060

Dr. Bertram Spector  
CACI, Inc. - Federal  
1815 N. Fort Myer Drive  
Arlington, VA 22209

Dr. C. Kelly  
Decisions and Designs, Inc.  
Suite 600, 7900 Westpark Dr.  
McLean, VA 22101

Mr. George Pugh  
General Research Corp.  
7655 Old Springhouse Road  
McLean, VA 22101

Mr. Gary W. Irving  
Integrated Sciences Corp.  
1532 Third Street  
Santa Monica, CA 90401

Dr. Amos Freedy  
Perceptronics, Inc.  
6271 Variel Avenue  
Woodland Hills, CA 91364

Dr. Paul Slovic  
Oregon Research Institute  
P.O. Box 3196  
Eugene, OR 97403

Dr. A. C. Miller III  
Stanford Research Inst.  
Decision Analysis Group  
Menlo Park, CA 94025

Dr. R. A. Howard  
Stanford University  
Stanford, CA 94305

Dr. Ward Edwards, Director  
Social Science Research Inst.  
University of Southern Calif.  
Los Angeles, CA 90007

Mr. Frank Moses  
U.S. Army Research Institute  
1300 Wilson Boulevard  
Arlington, VA 22209

Robert G. Gough, Major, USAF  
Associate Professor  
Dept. of Economics, Geography,  
and Management  
USAF Academy, Colorado 80840

Dr. T. Owen Jacobs  
P.O. Box 3122  
Ft. Leavenworth, Kansas 66027

Dr. Gary Poock  
Operations Research Department  
Naval Postgraduate School  
Monterey, CA 93940

Dr. Jesse Orlansky  
Institute for Defense Analyses  
400 Army-Navy Drive  
Arlington, VA 22202

Prof. Carl Graf Hoyos  
Institute for Psychology  
Technical University  
8000 Munich, Arcisstr 21  
Federal Republic of GERMANY

Dr. Arthur Blaiwes  
Naval Training Equip. Center  
Orlando, FL 32813

Dr. William A. McClelland  
Human Resources Research Office  
300 N. Washington Street  
Alexandria, VA 22314